LOK JAGRUTI UNIVERSITY (LJU)

INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Civil Engineering (709)

Bachelor of Engineering (B.E.) – Semester – I

Course Code:	017092191		Teaching Scheme				
Course Name:	Python Programming		Lecture (L)	Tutorial (T)	Practical (P)	Credit	Total Hours
Category of Course:	Engineering Science Course (ESC)	Ī	2	0	(_	20
Prerequisite Course:	Mathematics - I (017091191)		2	U	0	5	20

	Syllabus				
Unit No.	Торіс	Prerequisite Topic	Successive Topic	Teaching Hours	
01	Introduction to Python and Jupyter Notebooks1.1 Overview of languages : introduction and comparison of procedure, object oriented and machine level language, introduction, uses and features of python, difference of compiler and interpreter, use function of print			1 (5%)	
01	 1.2 Jupyter Notebooks: creating, opening, saving and downloading notebooks 1.3 using interactive shell, editing, saving and running a script, basics of puthon IDLE. IDES. 				
	python IDLE, IDEs, IDE				
02	Basic Elements of Python2.1 Basics and variables of data types for text, numeric and boolean (text, numeric, sequence, mapping, set, Boolean, range and len function), datatype conversion and single line and multiline comments			2 (10%)	
	2.2 Arithmetic, relational, logical, ternary, bitwise, assignment, identity and membership operators and their expressions, operator precedence2.3 Reading input from users for text and numeric			(1070)	
03	Decision Making Statements			2	
05	3.1 Control Statements: Simple if, if-else, if-elif-else(ladder if), Nested if			(10%)	
04	Looping Constructs 4.1 Loops: for loop, while loop, nesting of loops 4.2 Break, continue, pass statement			- 3 - (15%)	
	Functions and Scoping				
	5.1 Declaring, defining and invoking different categories of user define functions.			2	
05	5.2 One liner and multi liner function specification5.3 Function arguments: keyword, default, positional and arbitrary or variable-length			(10%)	
	5.4 Local v/s Global variables, modules			-	
	Immutable Data Structure				
	6.1 Immutable data structures (operations and functions): strings, tuples, numbers				
06	6.2 Strings -immutability, declaring, creating, accessing character of string by index and slice operator slicing, mathematical operators, comparison, joining and formatting, removing spaces and changing cases of string. function of len, find, count, replace, partition and split of string. check type of character presence in string using istitle(), isalnum(), islower(), isupper(), isnumeric(), isalpha(), isdigit(), isidentificar(), isometable(),			2 (10%)	
	 isidentifier(), ispritable(), isspace() 6.3 Tuples - immutability, creating, accessing elements by index and slice operator slicing and mathematical operator, function of len, count, index, sorted, min, max, tuple packing and unpacking 			-	
	Mutable Data Structure				
07	7.1 List- mutability, creating, accessing elements by index and slice operator slicing, operators - mathematical, comparison, membership, functions - len, count, index, append, insert, extend, remove, pop, clear, sort, reverse, split, aliasing and cloning of list – slice and copy, nested list, nested list as matrix, list comprehensions				
	7.2 Set - mutability, creating and accessing element of set, mathematical operations – union, intersection, difference, symmetric difference, membership operators functions – len, add, update, copy, pop, remove, discard, clear, set comprehensions			3 (15%)	
	 7.3 Dictionaries- mutability, creating, accessing, updating, deleting elements of dictionary functions – dict, len, clear, copy, update, get, popitem, keys, values, items, setdefault, dictionary comprehensions, loop and nested dictionaries 				
	7.4 Lambda function, lambda function with map, reduce and filter				

	Working with Files					
	8.1 Types of files					
	8.2 Create, open, with open, read (read(), readlines(), readline()) ,			1		
08	write((write(), writelines()), append (tell(), seek(offset)), close, rename or			2		
	delete text files. various properties of file object.			(10%)		
	8.3 OS module- getting and changing current working directory, creating,					
	removing and renaming directories, list files and sub directories 8.4 System modules – sys.argv, sys.exit, sys.maxsize, sys.path, sys.version					
	Mathematical Functions in Python					
09	9.1 Import math module9.2 ceil, comb, floor, exp, fabs, factorial, log, pow, fmod, frexp			- 1		
07	Trigonometric Function		(5%)			
	9.3 Trigonometric, logarithmic functions, maths constants	(017091191-Unit-2)				
	The Matplotlib Library					
	10.1 Installation and import of matplotlib and numpy			_		
	10.2 Function for graph: create label, title, legend, set font properties, grid,					
	plot, show, subplot, color, colormap					
	10.3 Line graph: line style, marker, marker size, format string fmt, color					
10	reference, multiple line, two lines on same graph, twinx and twiny function			$-\frac{2}{(109/)}$		
	10.4 Scatter graph: marker style, color and size, alpha			(10%)		
	10.5 Bar graph: horizontal and vertical bar, width, height, color					
	10.6 Histogram and Box Plot					
	10.7 Pie chart: lables, array, color, startangle, explode, shadow					
	10.8 plotting maths functions					

1 Write a Python program to fail the area of Carlet. 3 Write a Python program to fail the area of Carlet. 3 Write a Python program to calculate suffice volume and area of a cylinder. 6 Write a Python program to calculate suffice volume and area of a cylinder. 7 Write a Python program to calculate suffice volume and area of a cylinder. 8 Write a Python program to calculate suffice volume and area of a cylinder. 9 Write a Python program to calculate suffice volume and area of a cylinder. 9 Write a Python program to calculate be square root of a complex number. 10 Write a Python program to calculate be square root of a complex number. 11 Write a python program to calculate be square root of a complex number. 12 Write a program to fail of the maximum number among the three input numbers. 13 Write a program to fail of the maximum number among the three input numbers. 14 Write a program to ind sum of first N natural number given by user. 16 Write a program to the divisible hy-C 17 Write a program to take if the input antiber size input numbers. 18 Write a program to take if the historial of a number role of except 3 and 6. 18 Write a program to t	Link to Theory Syllabus
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 4 Write a Python program to calculate the area of a trapezoid. 8 Write a Python program to convert Fahrenheit to Celsius. 7 Write a Python program to convert Fahrenheit to Celsius. 8 Write a Python program to convert Fahrenheit to Celsius. 9 Write a Python program to calculate be square root of a positive number. 9 Write a Python program to calculate be square root of a positive number. 9 Write a Python program to convert fahrenheit and celsius and the square root of a positive number. 9 Write a Python program to calculate be square root of a positive number. 9 Write a Python program to convert effect or radian. 11 Write a program to the chek if the input number is only during the three input numbers. 14 Write a program to theck if the input number some the three input numbers. 14 Write a program to theck if the input number some the three input numbers. 14 Write a program to theck if the input number some the three input numbers. 14 Write a program to read three number some the three input numbers. 16 Write a program to fact the number some the three input numbers. 17 Write a program to fact the number some the three input numbers. 18 Write a program to the radit with the numbers (how 0 to 6 except 3 and 6. 18 Write a program to the python the program to display the Fibonacci sequence up to n-th term. 20 Write a program to the the values form the exploand other was reage on the screen 21 Write a program to the the value mumber is Armstrong number or not. 22 Write a program to the the value number is prime or not. 23 Write a program to the the value mumber is prime or not. 24 Write a python Program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern:	Unit-2
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 7 Write a Python program to calculate the square root of a complex number. 9 Write a Python program to calculate the square root of a complex number. 10 Write a Python program to calculate the square root of a complex number. 11 Write a Python program to calculate the square root of a complex number. 12 Write a Python program to calculate the square root of a complex number. 13 Write a python program to calculate the square root of a complex number. 14 Write a python program to check if the input number is old or even. (Simple if). 15 Write a program to check if part is a lang year on chy Nesdel 17. 16 Write a program to find sum of first N natural number given hy user. 17 Write a python program the primis all the numbers from 0 to 6 except 3 and 6. 18 Write a program to tail the fractional cal.bc) and check how many numbers between "a' and h' are divisible by v'c'. 17 Write a python program to tail by v'c. 18 Write a program to tail the fractional of a number provided by the user 19 Write a program to take 10 values from keyboard using loop and print their average on the screen 10 Write a program to check if a number vis prime or not. 21 Write a program to check if a number vis prime or not. 22 Write a program to check if a number ris prime or not. 23 Write a potent: * * * *	Unit-2
 8 Write a Python program to calculate the square root of a positive number. 9 Write a Python program to calculate the square root of a complex number. 10 Write a Python program to convert degree to radian. 11 Write a Python program to convert degree to radian. 12 Write a program to find the maximum number anong the three input numbers. 14 Write a program to find the maximum number anong the three input numbers. 14 Write a program to find the maximum number anong the three input numbers. 14 Write a program to find sum of first N natural number given by user. 16 Write a python program to read three numbers (abc) and check how many numbers between 'a' and 'b' are divisible by 'c'. 17 Write a python program to the factorial of a number from 0 to 6 except 3 and 6. 18 Write a program to the 10 values from keyboard using loop and print their average on the screen 20 Write a program to teck! If a number is form 0 to 6 except 3 and 6. 18 Write a program to teck! If a number is form 0 to 10 for user. 20 Write a program to teck! If a number is frame ron 0. 21 Write a program to teck! If a number is form or not. 22 Write a program to teck! If a number is frame ron ot. 23 Write a program to the eki fa number is prime or not. 24 Write a program to thread a number n and print an identity matrix of the desired size. 25 Write a Python Program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * <	Unit-2
 Virtue a Python program to calculate the square root of a complex number. Write a Python program to calculate the square root of a complex number. Write a Python program to convert degree to radian. Write a program to check if the input number is old or even. (Simple if). Write a program to check if year is a leap year or not (Nested IF). Write a program to find the maximum number among the three input numbers. Write a program to find the number is (a, b, c) and check how many numbers between s' an dv' are dvissible by v². Write a program to find the factorial of a number provided by the user. Write a program to to display the Fibonacci sequence up to n-th term. Write a program to check if year is produced using loop and print their average on the screen. Write a program to check if a number is a famstrong number or not. Write a program to check if a number is a famstrong number or not. Write a program to check if a number is prine or not. Write a program to check if a number is prine or not. Write a program to check if a number and print an identity matrix of the desired size. Write a Python from the rad a number n and print an identity matrix of the desired size. Write a Python from term term a number in a distribution user. ** * ** <	Unit-2
 Write a Python program to find moss of quadratic equation. Write a Python program to find moss of quadratic equation. Write a Program to check if the input number is odd or even. (Simple if). Write a program to find the maximum number among the three input numbers. Write a program to find the maximum number among the three input numbers. Write a program to find the maximum number among the three input numbers. Write a program to find the maximum number stop, and check how many numbers between 'a' and 'b' are divisible by 'c'. Write a python program to read three numbers (a.b., c) and check how many numbers between 'a' and 'b' are divisible by 'c'. Write a program to find the factorial of a number provided by the user Write a program to take 10 values from keyboard using loop and print their average on the screen Write a program to take 10 values from keyboard using loop and print their average on the screen Write a program to check if a number is Armstrong number or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to print prime number between given interval from user. Write a program to print prime number between given interval from user. Write a putern: * * * * * * * * * * * * * * * * <l< td=""><td>Unit-2</td></l<>	Unit-2
11 Write a Python program to convert degree to radia. 12 Write a program to check if the input number is odd or even. (Simple if). 13 Write a program to check if the input number is odd or even. (Simple if). 14 Write a program to check if year is a leap year or not (Nested I). 15 Write a program to is odd or even. (Simple if). 16 Write a program to ifnd the momber site (a,bc) and check how many numbers between 'a' and 'b' are divisible by 'c'. 17 Write a Python program to display the Fibonacci sequence up to n-th term. 20 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to check if a number is Armstrong number or not. 22 Write a program to thek if a number is prime or not. 23 Write a program to read a number n and print an identity matrix of the desired size. 24 Write a program to theke if a number is prime or not. 25 Write a Python Program to read a number n and print an identity matrix of the desired size. 26 Traw a pattern: * * * * * * * * * * * * * * * * * * * * * * * * <td>Unit-2</td>	Unit-2
12 Write a program to check if the input number is odd or even. (Simple if). 13 Write a program to check if year is a leap year or not (Nested IF). 14 Write a program to check if year is a leap year or not (Nested IF). 15 Write a program to read three numbers (a.b.c) and check how many numbers between 'a' and 'b' are divisible by 'c'. 17 Write a program to read three numbers (a.b.c) and check how many numbers between 'a' and 'b' are divisible by 'c'. 19 Write a program to find the factorial of a number provided by the user 19 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to check whether a number is Armstrong number or not. 22 Write a program to check whether a number is armstrong number or not. 23 Write a program to check if a number is prime or not. 24 Write a program to check mumber is schward using loop and print their average on the screen 25 Write a program to print prime number between given interval from user. 26 Draw a pattern:	Unit-2
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 Write a program to check if year is a leap year or not (Nested II). Write a program to check if year is a leap year or not (Nested II). Write a program to check if year is a leap year or not (Nested II). Write a python program to read three numbers (a,b,c) and check how many numbers between 'a' and 'b' are divisible by 'c'. Write a Python program to display the Fibonacci sequence up to n-th term. Write a program to take 10 values from keyboard using loop and print their average on the screen Write a program to take 10 values from keyboard using loop and print their average on the screen Write a program to to check whether a number is Armstrong number or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to not check if a number is prime or not. Write a Python Program to read a number n and print an identity matrix of the desired size. Draw a pattern: * * * * * * * * Draw a pattern: * * * * * * * * * * * * Draw a pattern: * * <li< td=""><td></td></li<>	
15 Write a program to find sum of first N natural number given by user. 16 Write a program to find sum of first N natural number given by user. 17 Write a Python program to read three numbers (h.b.c) and check how many numbers between "a' and "b' are divisible by 'v'. 17 Write a Python program to find the factorial of a number provided by the user 19 Write a program to time the factorial of a number provided by the user 20 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to the check if a number is Armstrong number or not. 23 Write a program to check whether a number is Armstrong number or not. 24 Write a program to print prime number between given interval from user. 25 Write a program to print prime number number is nine or not. 24 Write a program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	Unit-3
16 Write a python program to read three numbers (a,b,c) and check how many numbers between a' and 'b' are divisible by 'c'. 17 Write a Python program to find the factorial of a number provided by the user 19 Write a program to find the factorial of a number show by the user 10 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to check whether a number is Armstrong number or not. 23 Write a program to check whether a number is Armstrong number or not. 24 Write a program to check if a number be ween given interval from user. 25 Write a program to check if a number not and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * <	Unit-3
between 'a' and 'b' are divisible by 'c'. 17 Write a Python program to find the factorial of a numbers from 0 to 6 except 3 and 6. 18 Write a program to take 10 values from keyboard using loop and print their average on the screen 19 Write a program to take 10 values from keyboard using loop and print their average on the screen 20 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to check whether a number is Armstrong number or not. 23 Write a program to check if a number between given interval from user. 24 Write a program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	Unit-4
 17 Write a Python program that prints all the numbers from 0 to 6 except 3 and 6. 18 Write a python program to find the factorial of a number provided by the user 19 Write a python program to take 10 values from keyboard using loop and print their average on the screen 20 Write a program to the 10 values from keyboard using loop and print their average on the screen 21 Write a program to the check if a number is Armstrong number or not. 23 Write a program to check whether a number is Armstrong number or not. 24 Write a program to check whether a number is prime or not. 25 Write a program to the check if a number petween given interval from user. 26 Draw a pattern: * * * * * * * * * * * * * 27 Draw a pattern: * * * * * * * * * * * * * * * 28 Draw a pattern: * * * *<	Unit-4
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 19 Write a python program to display the Fibonacci sequence up to n-th term. 20 Write a program to take 10 values from keyboard using loop and print their average on the screen 21 Write a program to reverse a number. 22 Write a program to check whether a number is Armstrong number or not. 23 Write a program to print prime number between given interval from user. 24 Write a program to print prime number between given interval from user. 25 Write a Python Program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * 27 Draw a pattern: * * * * * * 28 Draw a pattern: * * * * * * 29 Draw a pattern: * * * * * * * 29 Draw a pattern: * * * * * * * * * 29 Draw a pattern: * * * * * * * * * * * * * 	Unit-4
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 21 Write a program to reverse a number. 22 Write a program to check whether a number is Armstrong number or not. 23 Write a program to print prime number between given interval from user. 24 Write a Python Program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * * 27 Draw a pattern: * * * * * * * * * * * * 28 Draw a pattern: * * * * * * * * * * * * 29 Draw a pattern: * * * * * * * * * * * * 29 Draw a pattern: * * * * * * * * * * * * 30 Draw a pattern: * * * * * * * * * * * * * * * * * * *<!--</td--><td>Unit-4</td>	Unit-4
 Write a program to check whether a number is Armstrong number or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a program to check if a number is prime or not. Write a Python Program to read a number n and print an identity matrix of the desired size. Draw a pattern: ** ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** Draw a pattern: ** ** ** ** ** ** ** Draw a pattern: ** ** ** ** ** Draw a pattern: 1 2 3 4 5 1 2 3 4 5 1 2 3 4 1 2 3 4 5 1 2 3 4 1 2 3 4 1 31 Write a Python function to find the Max of TWO numbers. Write a Python function to sum all the numbers in a list. Write a Python function to calculate the factorial of a number. Write a Python function to check whether a number is in a given range. Write a Python function to check whether a number is in a given range. Write a Python program to write a list to a file Write a Python program to write a list to a file. Write a Python program to count the number of lines in a text file. Write a Python program to count the number of lines in a text file	Unit-4
 23 Write a program to check if a number is prime or not. 24 Write a program to check if a number is prime or not. 25 Write a Python Program to read a number n and print an identity matrix of the desired size. 26 Draw a pattern: * * * * * * * * * * * 27 Draw a pattern: * * * * * * * * * 28 Draw a pattern: * * * * * * * * * 28 Draw a pattern: * * * * * * * 29 Draw a pattern: * * * * * * * * 29 Draw a pattern: * * * * * * * * 30 Draw a pattern: 1 2 3 4 5 1 2 3 4 1 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 1 3 4 1 2 3 4 1 2 3 4 1 2 3 1 3 4 1 2 3 4 1 2 3 1 3 4 1 2 3 4 1 2 3 1 3 4 1 2 3 1 4 1 2 3 1 5 1 2 3 4 1 2 3 1 4 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 3 4 1 2 3 1 4 1 5 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 5 1 2 3 4 1 2 3 1 2 3 1 2 3 1 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 1 2 3 4 1 2 3	Unit-4
 Write a program to print prime number between given interval from user. Write a Python Program to read a number n and print an identity matrix of the desired size. Draw a pattern: * * * 27 Draw a pattern: * * * * * * * * * * * * 28 Draw a pattern: * * * * * * * * * 28 Draw a pattern: * * * * * * * * * 29 Draw a pattern: * * * * * * * * * 29 Draw a pattern: * * * * * * * * * 30 Draw a pattern: 1 2 3 4 5 1 2 3 4 1 31 Write a Python function to find the Max of TWO numbers. 31 Write a Python function to calculate the factorial of a number. 33 Write a Python function to calculate the factorial of a number. 34 Write a Python function to check whether a number is in a given range. 35 Write a Python program to check if a string is palinforme or not 39 Write a Python program to count the number of lines in a text file. 38 Write a Python program to count the number of lines in a text file. 39 Write a Python program to count the number of lines in a text file. 39 Write a Python program to count the number of lines in a text file. 39 Write a Python program to split and join a string 41 Write a Python program to split and join a string 41 Write a Python function to tapit and join a string 	Unit-4
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 28 Draw a pattern: * * * * * * * * * * * 29 Draw a pattern: * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *	Unit-4
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 37 Write a Python program to count the number of lines in a text file. 38 Write a Python program to check if a string is palindrome or not 39 Write a Python program to Find length of a string in python. 40 Write a Python program to split and join a string 41 Write a Python function that accepts a string and calculate the number of uppercase letters and lowercase I 	Unit-6
 38 Write a Python program to check if a string is palindrome or not 39 Write a Python program to Find length of a string in python. 40 Write a Python program to split and join a string 41 Write a Python function that accepts a string and calculate the number of uppercase letters and lowercase I 	Unit-6
 39 Write a Python program to Find length of a string in python. 40 Write a Python program to split and join a string 41 Write a Python function that accepts a string and calculate the number of uppercase letters and lowercase I 	Unit-7
 40 Write a Python program to split and join a string 41 Write a Python function that accepts a string and calculate the number of uppercase letters and lowercase I 	Unit-7
41 Write a Python function that accepts a string and calculate the number of uppercase letters and lowercase l	Unit-7
write a Fymon program to Convert Snake case to Pascal case.	
43 Write a Python program to demonstrate the addition of elements in a Tuple.	Unit-7 Unit-7

44	Write a Python program to demonstrate the negative index in a Tuple	Unit-7
45	Write a Python program to demonstrate the slicing of a Tuple	Unit-7
46	Write a Python program to print the even numbers from a given list.	Unit-8
47	Write a Python Program to print the largest even and largest odd number in a list.	Unit-8
48	Write a Python program to swap first and last element of the list.	Unit-8
49	Write a Python program to find the sum of all the elements in the list.	Unit-8
50	Write a Python program of Reversing a List.	Unit-8
51	Write a Python program to Merging two Dictionaries	Unit-8
52	Write a Python program for Words Frequency in String Shorthand's.	Unit-8
53	Write a Python program to calculate the sum of the positive and negative numbers of a given list of numbers using lambda function.	Unit-8
54	Write a Python program to rearrange positive and negative numbers in a given array using Lambda.	Unit-8
55	Write a Python program to count the even, odd numbers in a given array of integers using Lambda.	Unit-8
56	Write a Python program to add two given lists using map and lambda.	Unit-8
57	Write a Python program to find numbers divisible by nineteen or thirteen from a list of numbers using Lambda.	Unit-8

Major Components/ Equipment			
Sr. No.	Component/Equipment		
1	Computer		
2	Python Compiler - Pycharm		

Proposed Theory + Practical Evaluation Scheme by Academicians (% Weightage Category Wise and it's Marks Distribution)						
L:	2	Т:	0	P:	6	
Note: In Theory Grou Each Test will be of 2 Each Test Syllabus W	5 Marks.		74) will be conducted for each subject. % - 30%			
Group (Theory or Practical)	Group (Theory or Practical) Credit	Total Subject Credit	Category	% Weightage	Marks Weightage	
Theory			MCQ	24%	60	
Theory	2		Theory Descriptive (Mainly Programming)	16%	40	
Theory			Formulas and Derivation	0%	0	
Theory			Numerical	0%	0	
Expected Theory %	40%	5	Calculated Theory %	40%	100	
Practical			Individual Project	24%	40	
Practical			Group Project	24%	40	
Practical	3		Internal Practical Evaluation (IPE)	12%	20	
Practical			Viva	0%	0	
Practical			Seminar	0%	0	
Expected Practical %	60%		Calculated Practical %	60%	100	
Overall %	100%			100%	200	

Course	Outcome
	Upon completion of the course students will be able to
CO1	Understand the basics of python programming.
CO2	Apply the fundamental python concepts such as data types, identifiers, keywords, constants, variable, comment, basic input output, operators, and its precedence.
CO3	Analyze the indentation syntax, branching and looping techniques, and various data structures such as strings, arrays, lists, tuples, dictionaries and sets.
CO4	Apply mathematical functions in python and generate different types of the plots using library.
Suggeste	ed Reference Books
1	Python: The Complete Reference, Martin C. Brown, McGraw Hill Education
2	Introduction to Computation and Programming Using Python, John V Guttag, Prentice Hal
3	Data Structures and Algorithms in Python, Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, Wiley
4	Fundamentals of Python – First Programs, Kenneth A. Lambert, CENGAGE Publication
5	Professional Python, Luke Sneeringer, Wrox

List of O	List of Open Source Software/Learning website	
1	www.python.org	
2	www.w3schools.com	
3	www.geeksforgeeks.org	
4	www.learnpython.org	

Sr. No.	Project List	Linked with Unit
1	 Hotel management system : Listed below are some of the important functions dashboard() – This function displays the menu or welcome screen to perform different hotel booking activities mentioned below. new_acc() – This function creates a new customer account. It asks for some personal and banking details of the customer such as name, date of birth, citizenship number, address and phone number. room_type() – This function allows the user to select the categories of the room ie normal or executive with the option of Ac room or non ac room. check_availability() – This functionality allows the user to check the number of room vacant prior booking. book_room() – This function allows the user to book the selected room. search_facilities() – With this function, if the user selects the executive room than user can search for the extra facilities provided like games, swimming, food service in rooms while booking. payment() – This function allows making payment of booked room based on number of days the room is occupied via online method option or at the checkout time. 	Unit 2,3,4,6
2	It is required to maintain and process the status of total 9 resources. The status value is to be stored in an integer array of dimension 3x3. The valid status of a resource can be one of the 3 followings: free: indicated by integer value 0 occupied: indicated by integer value 1 inaccessible: indicated by integer value 2 Declare a class called ResourcesStatus, having data member called statusRef, referring to a two dimensional array (3x3) of integers to be used to refer to the above mentioned status values. Define a member method called processStausCount that counts and displays total number of free resources, total number of occupied resources and total number of inaccessible resources. The exception to be raised and handled if total number of occupied resources as free. Accept initial status values from user and initialize the array. Raise and handle user defined exception if invalid status value given.	Unit 2,3,4,6,8
3	 Create an application that performs the following task associated with the files : Eliminating repeated lines from the files. Reverse the content of file and store in another file. Remove the lines starting from any prefix. Obtain the line number where the particular word is present. Obtaining number of words, characters, white spaces and lines present in that particular file. 	Unit 2,3,4,5,6
4	Implement calculator functionality.	All Units
5	Write a program to implement Quadratic equation.	All Units